THE PC10 HAS LANDED

Launched in Europe, Commodore's IBM clone
has arrived on U.S. shores and should be
a strong contender in the U.S. market.

By MARGARET MORABITO

Commodore recently introduced its IBM-PC clones, the PC10-1 and PC10-2, to the U.S. consumer market after several years of selling very strongly in Europe. The clone market is currently packed with low-cost machines, but Commodore's introduction still comes at a good time. Commodore is already closely associated with the home market, it has a large base of service and support centers in place, and it has a strong product line at affordable prices.

Both configurations of the PC10 are compatible with both the IBM-PC and the IBM-XT. The PC10-1 is a single-disk-drive unit with 512K of memory, expandable to 640K on the motherboard or with a card. The PC10-2 is a double-disk-drive machine that comes with 640K. Aside from the number of drives and amount of memory, the computers are identical. I reviewed the PC10-2 for this article.

What You Get

The PC10-2 includes a system unit and an external keyboard. The system unit houses two half-height 360K floppy-disk drives, a floppy-disk controller on the motherboard, 640K of RAM memory, 16K of Phoenix BIOS, a Centronics parallel port for hooking up a parallel printer, an RS-232C port for a modem or serial printer,

provision for polyphonic sound and an ATI Graphics Solution video display card.

The computer is equipped with a 112-watt power supply and a cooling fan. The power supply is strong enough to support a maximum configuration of two floppy drives, five expansion cards and a 40-megabyte hard-disk drive. The cooling fan is reasonably quiet; I've heard both louder and softer.

Commodore doesn't provide just the hardware; you also get the MS-DOS 3.2 operating system on disk, along with one volume containing the *MS-DOS 3.2 Operations Guide*, *MS-DOS 3.2 User's Guide* and *MS-DOS 3.2 User's Reference Manual*. In addition, you get GW Basic 3.2 on disk and a copy of Borland International's famous desktop organizer program, Sidekick, both also with user's guides.

Furthermore, the PC10-2 comes with a 12-month warranty and is supported by Commodore's large network of authorized service dealers. Commodore is marketing this machine in computer stores and selected retail outlets, not in the mass merchandising stores. You can get the location and phone number of your regional distributor by calling 1-800-345-8112.

The Microprocessor

The PC10-2 is built around the 8088 micropro-

cessor (4.77 MHz), the original IBM-PC and XT chip. The 8088 is considered slow and outdated by some critics, but it's 100 percent compatible with all IBM-PC and XT software and is still being used by some other major clone producers.

Commodore's new IBM-PC clone, the recently imported PC-10.

Many clone manufacturers are speeding up their PCs by relying on multi-speed microprocessors that will run at 6, 8 and even 12 MHz. Tandy and Leading Edge, for example, have switched to the dual-speed 8088-2 chip, which will operate at 4.77 and 7.16 MHz. The faster processors make for faster handling of large amounts of data, as in large-scale spreadsheets and databases that require a lot of numeric input.

Microprocessor speed is not important to all users. If you're using your computer mainly for word processing, education and entertainment, or for applications that don't require a lot of

A view of the inner workings of the PC-10.

number crunching, then you'll notice little difference between the 4.77 and 7.16 processing rates. However, for the business user who works with large spreadsheets, speed is an important factor.

For math-intensive applications, the PC10-2 has a socket on the motherboard that accepts an 8087 math coprocessor. This device speeds up opera-

tions involving floating point numbers and can be purchased at computer stores or from mail order firms for about $110.

Video Options

You have to pay big bucks to get graphics and color cards for an IBM-PC. Commodore, on the other hand, has included the ATI Graphics Solution card in the PC10-2. It provides the combined functions of the IBM CGA (Color/Graphics Adapter), the IBM MDA (Monochrome/Display Adapter), the Hercules Graphics Card and the Plantronics ColorPlus Adapter.

The ATI video card supports various monitors: IBM-compatible TTL monochromes, RGBIs such as the 1901 and 1902, color composites and monochrome composites. It also lets the PC10-2 run color software on a monochrome monitor using different shades, and it can handle a 132-column text display in Color and Monochrome modes.

This card offers three graphics modes: 320-by-200 pixels with 4 or 16 colors; 640-by-200 pixels with 2, 4 or 16 colors; and 720-by-348 pixels with Hercules compatibility. All this means that the PC10-2 can run any MS-DOS or PC-DOS software package.

You control the configuration of the Video mode through DIP switches on the ATI card and the motherboard, or through software. Be sure to read the instructions carefully when first setting up your system. If you don't set the switches properly, you won't get any display at all.

I used the 1902A RGBI color monitor for this review. While it did display all the software I tested, and produced good quality color graphics, I found it hard on my eyes for word processing. I've used other PC clones with much sharper text displays. Part of the problem is that only the contrast and brightness controls are active on the 1902A monitor; the sharpness, color and hue controls are not.
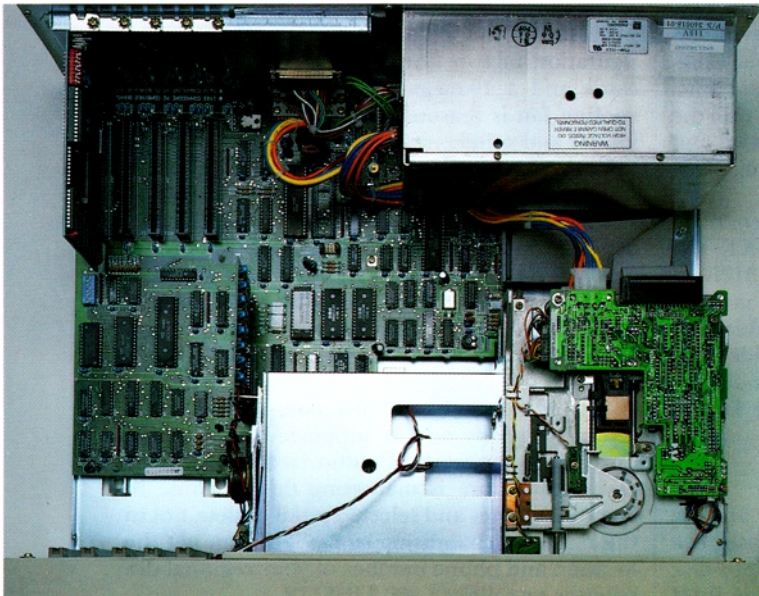
External Features

The lightweight PC10-2 keyboard is attached to the front of the system unit, which is convenient for holding the keyboard in your lap. There are 85 keys, including a numeric keypad and ten function keys, and they're arranged much as the IBM-PC's, with the ten function keys to the left and the numeric keypad to the right. The enter and shift keys are large, and the number-lock and caps-lock keys have LEDs. I like the feel of the PC10 keys; they're firm, but not clackety like those on the IBM-PC.

The system unit itself appears rugged and built to last. It's on the large side (19.25 × 15.5 × 5.5 inches) and made of metal. The cover attaches by screws to the back and sides of the unit, and the power switch is located on the back. Unlike some PC clones, however, there's no reset switch.

Setting Up

The PC10-2 is easy to set up. All you need are two electrical outlets—one for the system unit and one for a monitor. If you're using a color monitor, you have to set the DIP switches on the video card and the motherboard. Aside from that, the unit comes ready to use.

I had trouble attaching my RGB connector to

the video port because of the high mounting location on the card. There's just a hair of space left between the top side of the cable connector and the system unit frame.

For those of you who are using a monochrome monitor, an RCA adapter is provided with the computer.

Software Compatibility

As with other IBM-PC clones on the market today, the PC10-2 is totally compatible with existing software for the IBM-PC. I tested my review unit with a variety of commercial IBM programs, such as Flight Simulator, Microsoft's Word 3.1, PC Tools, Graph-in-a-Box, SideKick, several Electronic Arts games, Accolade's Mean 18 golf simulation and Lotus 1-2-3. All worked flawlessly.

PC10-1 and PC10-2 Competitors and Comparisons

Taking the perspective of a potential buyer, I was concerned mainly with the features and the quality of the PC10. However, I was cost-conscious, too. The suggested retail prices are $1199 for the PC10-2 and $999 for the PC10-1 (monitor not included), and you can find these machines for less at local computer stores.

The prices of quality one-drive competitors to the PC10-1 are constantly dropping; in fact, systems with similar features are available at this writing for as low as $599. Many consumers are purchasing a one-drive unit, then buying a second disk drive (for about $130), a strategy that can be more cost-effective than buying a two-drive system.

When it comes to features, both the PC10-1 and PC10-2 stand up well in comparison to the leading clones selling for around $1000 and under.

Two of the PC10-1's major competitors are the Tandy 1000 EX and the Blue Chip. Feature by feature, the PC10-1 is way ahead of the 1000 EX, primarily because of its 512K memory and its five full-sized expansion slots. The 1000 EX comes with only 256K and three non-standard expansion slots. The PC10-1 also offers a more versatile video card, and, in general, a more IBM-like configuration than the 1000 EX, although for a greater price.

The PC10-1 and the Blue Chip appear to be about equal, but there are subtle differences. In the Blue Chip's favor, it has one more open expansion slot and a smaller footprint. However, it comes with just a monochrome video card, rather than the PC10-1's ATI graphics adapter. Blue Chip also has far less to offer in the way of manufacturer service and support.

Two of the PC10-2's most visible competitors for the home and school markets are the Leading Edge Model D and the Tandy 1000 SX. This Tandy, at $999, sells for less than the PC10-2, and it has one more open expansion slot in its basic configuration. The 1000 SX also comes with two joystick ports, a dual-speed microprocessor and integrated software, and it's backed by a huge support group for service and training. These factors make it seem perhaps a better buy than the PC10-2.

In the PC10-2's favor, however, is its 640K, as opposed to the Tandy's 384K (Tandy owners would pay about $100 more to get to 640K). The PC10-2 also offers a better video display, the standard IBM-PC keyboard arrangement and support

for a 40-megabyte hard drive, and it comes with a full-year warranty.

The Leading Edge Model D provides more competition for the PC10-2. It offers the same number of open expansion slots in its basic con-

Table 1. *Comparative features of the PC10-1 and two of its leading competitors.*

	PC10-1	Tandy 1000 EX	Blue Chip
Price	$999	$599	$599
Memory	512K	256K	512K
Ports Included	Parallel RS-232 Video*	Parallel Joystick (2) Video Head phone jack	Parallel RS-232 Video*
Expansion Slots	5	3 (non-standard)	6
Disk Drives	1	1	1
Speed	4.77 MHz	4.77 MHz 7.16 MHz	4.77 MHz
Keys	85	90	84
Software Included	MS-DOS 3.2 GW Basic SideKick	MS-DOS 3.2 GW Basic DeskMate II	MS-DOS 3.2 GW Basic
Warranty	12 mo.	3 mo.	12 mo.
Peripherals Included	none	none	none

*—On a card

Table 2. *Comparative features of the PC10-2 and two of its leading competitors.*

	PC10-2	Tandy 1000 SX	Leading Edge Model D
Price	$1199	$999	$1295
Memory	640K	384K	512K
Ports Included	Parallel RS-232 Video*	Parallel Joystick (2) Video Light Pen Audio	Parallel RS-232 Video
Expansion Slots	5	5	4
Disk Drives	2	2	2
Speed	4.77 MHz	4.77 MHz 7.16 MHz	4.77 MHz 7.16 MHz
Keys	85	90	83
Software Included	MS-DOS 3.2 GW Basic SideKick	MS-DOS 3.2 GW Basic DeskMate II	MS-DOS 3.1 GW Basic Leading Edge W.P. with Spelling
Warranty	12 mo.	3 mo.	15 mo.
Peripherals Included	none	none	Hi-res monochrome monitor

*—ATI Graphics Solution card

For those who are moving into the IBM-PC arena, Commodore's PC10-2 is certainly a strong contender.

figuration, plus a dual-speed 8088-2 microprocessor, memory expansion to 768K on the motherboard, a 15-month warranty, a smaller footprint and a high-resolution monochrome monitor—all for only $95 more than the price of the Commodore machine. Of course, it comes with less memory than the PC10-2's 640K and doesn't support color graphics.

In Tables 1 and 2, you'll find summaries of these comparisons between the PC10s and their competitors.

Keep in mind that these comparisons highlight only a few of the dozens of machines contending in the huge PC clone market, and that my comments aren't meant as recommendations. I just want to suggest factors you should consider when you're clone shopping, as well as the kind of cost variance you're likely to encounter.

As you shop, you may find even lower prices than the ones I've quoted, as well as additional features. Clones are now coming out with more plusses, such as applications software, video monitors and built-in hard disk drives. Clone-hunting is a challenging job!

Summary

If you're considering an IBM clone, don't make its cost your primary concern. Other features are more important, such as what peripherals and software come with the system, the kind of keyboard it has, the engineering of the unit. You should also weigh its video and graphics capabilities, the size of the memory and provision for expansion, the speed of the microprocessor and options to add other floppy drives or a hard disk drive.

You also need to consider your reasons for buying an IBM-PC clone in the first place. If you're a home user, you may not need as hefty and versatile a system as a school user. As a business user, you'll need durability plus fast processing speeds and a large-capacity hard drive.

For those who are moving into the IBM-PC arena, Commodore's PC10-2 is certainly a strong contender. The hardware seems well built, it offers the same standard features as many clones, it provides room for a hard disk drive, it comes with bundled software to get you going, and it's supported by a major player in the personal computer industry.

To make the PC10-2 even more competitive for the home market, Commodore should drop the price, upgrade the microprocessor and include a video monitor. Then it should give the machine the promotional effort it deserves.■

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